

Serial No. 10/722,563
Docket No. PTGF-03095

2

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A light emitting apparatus, comprising:

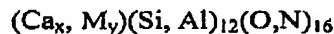
a light emitting element with an emission wavelength in a range of 360 to 550 nm;

and

a rare-earth element doped oxide nitride phosphor,

wherein a part of light radiated from the light emitting element is wavelength-converted by the phosphor, and the phosphor comprises a sialon system phosphor powder comprising:

α -sialon of 40 weight% or more and 90 weight% or less, the α -sialon being structured such that a Ca site of Ca- α -sialon represented by



is partially replaced by metal (M)[[.]]; and

β -sialon of 40 weight% or less[[.]]; and

unreacted silicon nitride of 30 weight% or less,

where M comprises metal that is one or more selected from Ce, Pr, Eu, Tb, Yb and Er

and $0.05 < (x + y) < 0.3$, $0.02 < x < 0.27$ and $0.03 < y < 0.3$.

2. (Previously presented) The light emitting apparatus according to claim 1, wherein:

the emission wavelength is in the range of 450 to 550 nm; and

the light emitting apparatus radiates white light generated by a mixture of the wavelength-converted light and an other part of light radiated from the light emitting element.

Serial No. 10/722,563
Docket No. PTGF-03095

3

3. (Previously presented) The light emitting apparatus according to claim 1, wherein:
the oxide nitride phosphor comprises an oxide nitride that contains the α -sialon as
a matrix material.
4. (Previously presented) The light emitting apparatus according to claim 1, wherein:
the phosphor comprises a powder or particles and is contained in a light transmitting
material.
5. (Previously presented) The light emitting apparatus according to claim 1, wherein:
the light emitting element comprises a III group nitride system compound
semiconductor emitting element.
- 6-12. (Canceled)
13. (Previously presented) The light emitting apparatus according to claim 1, wherein:
the entire phosphor powder has a chemical composition that is in the range of three
composition lines of $\text{Si}_3\text{N}_4\text{-a}(\text{M}_2\text{O}_3 \cdot 9\text{AlN})$, $\text{Si}_3\text{N}_4\text{-b}(\text{CaO} \cdot 3\text{AlN})$ and $\text{Si}_3\text{N}_4\text{-c}(\text{AlN} \cdot \text{Al}_2\text{O}_3)$,
where
 $4 \times 10^{-3} < a < 4 \times 10^{-2}$, $8 \times 10^{-3} < b < 8 \times 10^{-2}$ and $10^{-2} < c < 8 \times 10^{-1}$ are satisfied.
14. (Previously presented) A light emitting apparatus, comprising:
a light emitting element with an emission wavelength in the range of 360 to 550 nm;

Serial No. 10/722,563
Docket No. PTGF-03095

4

and

a cerium ion doped lanthanum silicon nitride phosphor,
wherein a part of light radiated from the light emitting element is wavelength-
converted by the phosphor,
a doping amount x is $0.0 < x < 0.2$, and
the phosphor comprises an electron beam excitation phosphor.

15. (Previously presented) The light emitting apparatus according to claim 14, wherein:
the phosphor is represented by:

$\text{La}_{1-x}\text{Si}_3\text{N}_5:x\text{Ce}$, where doping amount x is $0 < x < 1$, and
cerium ion is doped to a lanthanum site in a solid dissolution replacement.

16. (Previously presented) The light emitting apparatus according to claim 14, wherein:
a doping amount x is $0.1 < x < 0.5$, and
the phosphor comprises an ultraviolet ray excitation phosphor.

17. (Canceled)

18. (Original) The light emitting apparatus according to claim 14, wherein:
the phosphor radiates blue light.

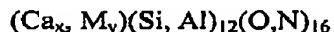
19. (Currently amended) A light emitting method for a light emitting apparatus that
comprises a light emitting element with an emission wavelength in a range of 360 to 550

Serial No. 10/722,563
Docket No. PTGF-03095

5

nm and a rare-earth element doped oxide nitride phosphor, wherein a part of light radiated from the light emitting element is wavelength-converted by the phosphor, the phosphor comprises:

a sialon system phosphor powder comprising α -sialon of 40 weight% or more and 90 weight% or less, the α -sialon being structured such that a Ca site of Ca- α -sialon represented by



is partially replaced by metal (M)[[.]];

β -sialon of 40 weight% or less[[.]]; and

unreacted silicon nitride of and 30 weight% or less,

where M comprises metal that is one or more selected from Ce, Pr, Eu, Tb, Yb and Er and $0.05 < (x + y) < 0.3$, $0.02 < x < 0.27$ and $0.03 < y < 0.3$, and the light emitting apparatus radiates light generated by a mixture of wavelength-converted light and an other part of light radiated from the light emitting element, comprising:

turning on intermittently the light emitting element.

20. (Previously presented) A light emitting method for a light emitting apparatus that comprises a light emitting element with an emission wavelength in a range of 360 to 550 nm and a cerium ion doped lanthanum silicon nitride phosphor, wherein a part of light radiated from the light emitting element is wavelength-converted by the phosphor, a doping amount x is $0.0 < x < 0.2$, the phosphor comprises an electron beam excitation phosphor, and the light emitting apparatus radiates light generated by a mixture of wavelength-converted light and an other part of light radiated from the light emitting element, comprising:

Serial No. 10/722,563
Docket No. PTGF-03095

6

turning on intermittently the light emitting.

21. (Previously presented) The light emitting method according to claim 19, wherein:

a color of the light radiated from the light emitting apparatus is adjusted by controlling a turn-on time of the light emitting element.

22. (Previously presented) The light emitting method according to claim 20, wherein:

a color of the light radiated from the light emitting apparatus is adjusted by controlling a turn-on time of the light emitting element.

23. (Previously presented) The light emitting method according to claim 19, wherein:

the emission wavelength is in the range of 450 to 550 nm, and the light emitting apparatus radiates white light.

24. (Previously presented) The light emitting method according to claim 20, wherein:

the emission wavelength is in the range of 450 to 550 nm, and the light emitting apparatus radiates white light.

25. (Previously presented) The light emitting apparatus according to claim 19, wherein:

the light emitting element comprises a III group nitride system compound semiconductor emitting element.

Serial No. 10/722,563
Docket No. PTGF-03095

7

26. (Previously presented) The light emitting apparatus according to claim 20, wherein:

the light emitting element comprises a III group nitride system compound semiconductor emitting element.

27. (Currently amended) A light emitting apparatus, comprising:

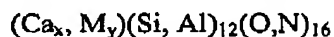
a light emitting element with an emission wavelength in a range of 360 to 550 nm;

and

a rare-earth element doped oxide nitride phosphor,

wherein a part of light radiated from the light emitting element is wavelength-converted by the phosphor, and the phosphor comprises a sialon system phosphor powder comprising:

α -sialon of 40 weight% or more and 90 weight% or less, the α -sialon being structured such that a Ca site of Ca- α -sialon represented by



is partially replaced by metal (M)[[.]]_z

β -sialon of 5 weight% or more and 40 weight% or less[[.]]_z and

unreacted silicon nitride of 5 weight% or more and 30 weight% or less,

where M comprises metal that is one or more selected from Ce, Pr, Eu, Tb, Yb and Er

and $0.05 < (x + y) < 0.3$, $0.02 < x < 0.27$ and $0.03 < y < 0.3$.